suspending the beads from the test assay in a first container comprising the pH-buffering compound, dithiothreitol, and a zinc salt;

suspending the beads from the control assay a second container comprising the pH-buffering compound, dithiothreitol, and a zinc salt;

adding the isolated peptide of claim **2** to the test assay and control assay;

incubating the isolated peptide of claim **2** with the beads from the test assay;

incubating the isolated peptide of claim **2** with the beads from the control assay;

separating the beads from the test assay from a test assay solution comprising the isolated peptide of claim **2**;

separating the beads from the control assay from a control assay solution comprising the isolated peptide of claim **2**;

measuring fluorescence intensity of the test assay solution;

measuring fluorescence intensity of the control assay solution;

comparing the fluorescence of the test assay solution and the control assay solution; and

determining whether BoNT A is present in the sample by whether the fluorescence of the test assay solution is higher than the fluorescence of the control assay solution.

28. The method of claim **27**, further comprising adding bovine serum albumin to the pH buffering compound.

29. The method of claim **27**, further comprising adding polysorbate 20 present to the pH buffering compound.

30. The method of claim **29**, wherein the polysorbate 20 is added to a final concentration of 0.05-0.10%.

31. A method of determining the concentration of BoNT A in a test sample comprising

placing the sample in solution in a pH-buffering compound;

mixing the sample in the pH-buffering compound with polymeric beads coated with antibodies specific for BoNT A to provide a test assay;

mixing the sample in the pH-buffering compound with polymeric beads with immunoglobulins not specific for BoNT A to provide a control assay;

incubating the sample with the pH-buffering compound with polymeric beads coated with antibodies specific for BoNT A to provide a test assay;

incubating the sample with the pH-buffering compound with polymeric beads with immunoglobulins not specific for BoNT A to provide a control assay;

washing the polymeric beads coated with antibodies specific for BoNT A with the pH-buffering compound;

washing the polymeric beads with immunoglobulins not specific for BoNT A with the pH-buffering compound;

suspending the beads from the test assay in a first container comprising the pH-buffering compound, dithiothreitol, and a zinc salt;

suspending the beads from the control assay a second container comprising the pH-buffering compound, dithiothreitol, and a zinc salt;

adding the isolated peptide of claim **2** to the test assay and control assay;

incubating the isolated peptide of claim **2** with the beads from the test assay;

incubating the isolated peptide of claim **2** with the beads from the control assay;

separating the beads from the test assay from a test assay solution comprising the isolated peptide of claim **2**;

separating the beads from the control assay from a control assay solution comprising the isolated peptide of claim **2**;

measuring fluorescence intensity of the test assay solution;

measuring fluorescence intensity of the control assay solution;

comparing the fluorescence of the test assay solution and the control assay solution; and

determining the concentration of BoNT A in the sample by comparison of fluorescence intensity of the test assay solution with a standard curve prepared using known concentrations of BoNT A Lc.

32. The method of claim **31**, further comprising adding bovine serum albumin to the pH buffering compound.

33. The method of claim **31**, further comprising adding polysorbate 20 present to the pH buffering compound.

34. The method of claim **33**, wherein the polysorbate 20 is added to a final concentration of 0.05-0.10%.

35. A method for measuring the activity of BoNT A comprising

incubating the isolated peptide of claim **1** with BoNT A to form a sample;

injecting the sample onto an HPLC column;

preparing a chromatogram of the elution of various components of the sample;

analyzing the chromatogram to determine how much of the isolated peptide of claim **1** was cleaved based upon the size of peaks correlating to the isolated peptide of claim **1** and cleaved portions of the isolated peptide of claim

36. A method for identifying a BoNT A inhibitor comprising

incubating BoNT A with a potential inhibitor to form a first sample;

incubating BoNT A without a potential inhibitor to form a second sample;

adding the isolated peptide of claim **1** to the first sample;

adding the isolated peptide of claim **1** to the second sample;

stopping the reactions by adding acid to the first and second sample;

injecting the first sample onto an HPLC column;

preparing a chromatogram of the elution of various components of the first sample;

injecting the second sample onto an HPLC column;

preparing a chromatogram of the elution of various components of the second sample;

analyzing the chromatogram for the first sample and the second sample to determine how much of the isolated peptide of claim **1** was cleaved based upon the size of peaks correlating to the isolated peptide of claim **1** and cleaved portions of the isolated peptide of claim **1**; and

determining that a potential inhibitor of BoNT A is a BoNT A inhibitor if the size of the peak correlating to the isolated peptide of claim **1** for the first sample is taller than the size of the peak for the isolated peptide of claim **1** the second sample.

37. A method of treating an individual in need of treatment for a disorder due to BoNT A comprising administering a composition comprising the isolated peptide of claim **1**.

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